MARHA, Jan, inz.

Electromagnetic and turbine flowmeter. Automatizace 7 no.9: 238-239 S '64.

1. Research Institute of Inorganic Chemistry, Usti nad Labem.

MARGVELASHVILI, O.V.

Method of calculating the speed of automobile motion by the run of the road. Soob. AN Gruz. SSR 26 no.5:573-578 My '61.
(MIRA 14:8)

1. Institut mashinovedeniya AN GruzSSR, Tbilisi. Predstavleno akademikom R.R. Dvali.
(Automobiles--Dynamics)

GBINERIYA, K.I.; MARGVELASHVILI, O.V.

Method for determining the size of the auxiliary tank for automobile air springs. Soob.AN Gruz.SSR 24 no.5:571-578 My '60. (MIRA 13:8)

1. Institut mashinovedeniya AN GruzSSR, Tbilisi. Predstavleno akademikom R.R.Dvali.
(Automobiles—Springs)

MARGVELASHVILI, O. V., Candidate Tech Sci (diss) -- "Investigation of the phenomenon of side creep of elastic tractor wheels". Tbilisi, 1959. 15 pp (Min Higher Educ USSR, Order of Labor Red Banner Georgian Polytech Inst im S. M. Kirov), 200 copies (KL, No 24, 1959, 138)

MARGVELASHVILI, Nikolay Semenovich

[Forest management] [Lesoustroistvo. Tbilisi, Ganatleba] 1965. 237 p. [In Georgian] (MIRA 18:8)

L 47313-65

ACCESSION NR: AT5007083

given, the pulse duration at the expander output was 0.1 μ, the prf was 1 mc, and the pulse amplitude was 30-35. Delayed feedback generators are the most effective types in nanosecond technology for generation of short-duration pulses with a high prf. The advantages of the described unmatched type over the matched type are noted. Use of the short-circuited delay line makes it easy to change the oscillation frequency, since different sections of the delay line can be grounded. The small number of elements, design simplicity, and stability of its prf make the described generator widely applicable as a driver oscillator in high-speed digital computers. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 07Jul64 ENCL: 01 SUB CODE: DP

NO REF SOV: 004 OTHER: 002

Card 2/3

L 47313-65 EWA(h)/EWT(1) Peb GS

ACCESSION NR: AT5007883 S/0000/64/000/000/0125/0131 22 B+1

AUTHOR: Ayazyan, A. A.; Margvelashvili, I. I.; Filimonov, M. N.

TITLE: Some characteristics of the generation process in pulse systems with delayed feedback based on reflected signals

SOURCE: AN GruzSSR. Institut kibernetiki. Elementy kiberneticheskikh sistem (Elements of cybernetic systems). Tiflis, Izd-vo Metsniyereba, 1964, 125-131

TOPIC TAGS: pulse generator, driver oscillator, nanosecond techniques, high-speed computer, delayed feedback 25

ABSTRACT: Experiments with a delayed feedback pulse generator are described in which the delay line is a short-circuited section of line with feedback by multiple signal reflection. A block diagram of the generator and a detailed schematic of the delay circuit are given in figs. 1 and 2 of the Enclosure. The authors examine the characteristics of the generation process in systems with a feedback delay time which differs from the natural relaxation time of the automatic control unit for the feedback factor. Synchronous oscillograms of the voltages at different points in the circuit for continuous and interrupted generation are given. In the example

Card 1/2

L 38539-65

ACCESSION NR: AP5005283

of the equilibrium concentration of the vacancies near the dislocation and the effective "average supersaturation" of the volume. It is shown that in addition to the electric double layer, the volume distribution of the vacancies in the stationary mode, near a dislocation line of non-zero curvature (or subject to the action of a definite external force), is characterized by a definite total electric charge. This means that the charge cloud around the dislocation is not neutralized by the charge on the dislocation line, and the neutralization of the charge in the crystal as a whole is due to formation of charges of opposite sign on other defects. The diffusion flux of vacancies through the surface surrounding the nucleus of the dislocation leads to a change in the dimensions of the prismatic dislocation. These results are new compared with those obtained by Eshelby et al (Phil. Mag. v. 3, 25, 75, 1958). Orig. art. has: 31 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov (Physicotechnical Institute, AN UkrSSR); Institut fiziki AN GruzSSR, Tbilisi (Institute of Physics, AN GruzSSR)

SUBMITTED: 22Jul64 ENCL: 00 SUB CODE: SS

NR REF SOV: 002 OTHER: 001

Card 2/2

L 38539-65 EEC(b)-2/EWT(1)/T Pi-4 IJP(c) GG

ACCESSION NR: AP5005283 S/0181/65/007/002/0464/0469

AUTHOR: Kosevich, A. M.; Margvelashvili, I. G.; Saralidze, Z. K.

TITLE: Distribution of charge near a prismatic dislocation loop in an ionic crystal

SOURCE: Fizika tverdogo tela, v. 7, no. 2, 1965, 464-469

TOPIC TAGS: charge distribution, dislocation loop development, vacancy concentration

ABSTRACT: The authors determine the distribution of stationary electric charge near a prismatic round dislocation loop in an ionic crystal. The loop may be either the boundary of a remote part of an atomic plane of circular form (type A), or a boundary between an intruded part of an atomic plane (type B). The charge distribution may be due either to the presence of linear tension along the dislocation or to the action of an external stress. In either case, an inhomogeneous vacancy distribution is produced and gives rise to a diffusion development of the dislocation loop. The direction of this diffusion is determined from the ratio

1/2

MARGVELANI, L.P.

Algorithm for the machine translation from Russian to Georgian. Trudy Inst. elek., avtom. i telem. AN '4:3-9 '63. (MIRA 17:5)

MARGUS, M. Ye., inzh.; GONCHARENKO, I.M., inzh.

Lowering the electric power consumption of concrete plants of the Stalingrad Building Trust. Mekh. stroi. 17 no.10:15-17 O '60. (MIRA 13:10)

(Stalingrad--Concrete plants) (Electric power)

MARGUS, M.Ye., inzh.

Apparatus for welding band saws. Der.prom. 9 no.3:22 Mr '60. (MIRA 13:6)
(Band saws--Welding)

MARGUS, M.Ye., inzh.

New design of water-level indicators for boilers. Bezop. truda v prom. 3 no.10:34 O '59. (MIRA 13:2)

1. Stalingradgidrostroy.
(Liquid level indicators)

98-58-7-16/21

Moving the SE-3 Excavator by Means of a Mobile PES-60 Electric Power Plant.

There are 2 tables and 1 diagram.

ASSOCIATION: Tsentral'naya nauchno-issledovatel'skaya laboratoriya Stalingrad-gidrostroya (The Central Scientific Research Laboratory of the Stalingradgidrostroy)

1. Earth moving machines--Operation 2. Power plants--Applications

Card 2/2

98-58-7-16/21

AUTHOR: Margus, M.Ye.

TITLE: Moving the SE-3 Excavator by Means of a Mobile PES-60 Electric Power Plant (Peregon ekskavatora SE-3 pri pomoshchi peredvizhnoy elektrostantsii PES-60)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo,1958,Nr 7,pp 45-46(USRR)

ABSTRACT: Engineer Yu,K. Kozyarskiy and the author, on behalf of Tsentral'naya nauchno-issledovatel'skaya Laboratoriya Stalingradgidrostroya (The Central Scientific Research Laboratory of the Stalingradgidrostroy) built a unit which, coupled with the mobile SE-3 excavator, supplied the current for the running gear of the excavator. The unit was first built on the basis of the mobile PES-60 electric power plant, but as its generator did not meet the prescribed requirements, another variant was built using a ZhES-60 electric power plant, and the whole unit was placed on metal skids. The main motor-generator comprised a driven AK type asynchronic electromotor of 30 kw with a phase rotor, a direct current generator of PM-290 type and an excitation-generator of 2.5 kw.

Card 1/2

MARKUS, M.Ye., inzh.

Modified control board for cement-unloading machinery. Mekh.stroi. 14 no.8:25-26 Ag '57. (MIRA 10:11)
(Loading and unloading)

MARGUS, M.YE.

SMOLYAR, A.A., inzhener; MARGUS, M.Ye., inzhener; GRIGORYAN, Yu.M., inzhener.

Automatization of drainage in hydrotechnical construction work. Gidr.stroi. 23 no.5:9-11 '54. (MLRA 7:8)
(Dams) (Drainage)

MARGUS, M. E.

USSR/Engineering - Construction

Card 1/1 : Pub. 70 - 3/11

Authors : Grigoryan, Yu. M.; Margus, M. E.; and Smolyar, A. A., Engineers

Title : Automatization of water-drainage during hydrotechnical construction work

Periodical : Mekh. stroi. 4, 9-12, Apr 1954

Abstract : A special pumping system, planned for the drainage of water during the construction of the Stalingrad Hydroelectric Plant on the Volga River, is described. Electrical wiring diagrams, for the two- and three-line automatic pumping-installation, are included. Drawings.

Institution : .....

Submitted : .....

MARGUS, Malev; ARAK, A., red.

[Economic importance of Estonian forests] Eesti metsade rahvamajanduslikust tähtsusest. Tallinn, Eesti Riiklik Kirjastus, 1964. 31 p. [In Estonian] (MIRA 17:6)

MARGUS, M.; VALMET, A.; VEERMETS, K.; RAIET, E., red.; LUMET, E., tekhn. red.

[Russian-Estonian silvicultural dictionary]Metsandulik vene-eesti sonastik. Tallinn, Eesti Riiklik Kirjastus, 1962. 78 p. (MIRA 15:10)

(Forests and forestry--Dictionaries)
(Russian language--Dictionaries--Estonian)

KAAR, E.; KOLLIST, P.;LING, Kh.[Lin, H.]; MAAVARA, V.; MARGUS, M.; NIL'SON,A.[Nilson,A.]; PARMASTO,E.; REBANE, Kh.[Rebane,H.]; SEPP, R.; VALK, U.; VEERMETS, K.; SKVORTSOVA,A., red.; TOOMSALU, E., tekhn. red.

[Forestry research in the Estonian S.S.R.] Lesovodstvennye issledovaniia v Estonskoi SSR. Tartu, 1960. 64 p. (MIRA 15:1)

1. Eesti NSV Teaduste akademia. Zoloogia ja botaanika instituut.
(Estonia--Forestry research)

MARGUS, M.

Larch plantations and their health condition in Estonia. p. 204.

TOIMETIS ED. BIOLOOGILINE SEERIA. IZVESTIIA. SERIIA BIOLOGICHESKAIA. (Eesti NSV Teaduste Akadeemia) Tallinn, Estonia. Vol. 8, no. 3, 1959.

Monthly list of East European Accessions (EEIA) Vol. 9, no. 1, Jan 1960.

Uncl.

MARGUS, M.

Introduction of nonindigenous trees in Latvia. p. 337.

GAZ, WODA I TECHNIKA SANITARNA (Stowarzyszenie Naukowo-Techniczne Inzynierow i Technikow Sanitarnych, Ogrzewnictwa i Gazownictwa) Warszawa, Poland, Vol. 32, no. 6, June 1958.

Monthly list of East European Accession (EEAI) LC, Vol. 9, no. 2, Feb. 1960

Uncl.

MARCUS, M.

A conference among the Baltic Republics on raising the productivity of swampy forests. p.476

GAZ, WODA I TECHNIKA SANITARNA (Stowarzyszenie Naukowo-Techiczne Inzynierow i Technikow Sanitarnych Orgrzewnictwa i Growmictwa) Warszawa, Poland
Vol.13, no.10, Oct. 1958

Monthly list of East European Accessions (EEAI) LC, Vol.9, no.2, Feb. 1960

Uncl.

MARGUS, M.

Notes about forestry in Finland.

P. 374, (Sotsialistlik Pollumajandus) Vol. 12, no. 8, Aug. 1957, Tallinn, Estonia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

MARGUS, M. K.

USSR/Forestry - Forest Cultures.

Abs Jour : Ref Zhur - Biol., No 21, 1958, 95853

Author : Margus, M.

Inst : Society of Natural History AS Estonian SSR

Title : Afforestation of Lands Not Suitable for Agriculture in the Estonian SSR.

Orig Pub : Loodusuurijate Soltsi aastaraamat Eesti NSV Teaduste Akad. juures, Yezhegodnik O-va Yestestvoispyt. pri AN EstSSR, 1955, 48, 293-311.

Abstract : Problems are enumetated which were treated by the Institute of Zoology and Botany AS Estonian SSR in connection with projects for broadening the forest area in the country by means of utilizing unfavorable lands. The content of the scientific-research topics planned by a Sector of the Forest Institute are briefly characterized.

Card 1/1

MARGUS, M. M.

"Utilization of Agriculturally Unproductive Sections of the Southeastern Part of the Estonian SSR for Afforestation. (Problems of Forest Cultivation Techniques in Afforestation of Nonproductive Fields in the Southeastern Part of the Estonian SSR)." Cand Agr Sci, Leningrad Forestry Engineering Academy imeni Kirov, Tartu, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

MARGUNSKIY, S.P.

Basic results of scientific activities of the Academy of Sciences of the White Russian S.S.R. in 1955. Vestsi AN BSSR Ser.biial.nav. no.1:5-17 '56. (MIRA 9:9)

1.Galouny vuchony sakratar Prezidyuma AN BSSR, chlen-karespandent AN BSSR.
(Academy of Sciences of the White Russian S.S.R.)

Margunskiy, S.P.

Category: USSR/General Division. Scientific Institutions. A-3

Abs Jour: Referat Zh.-Biol., No 9, 10 May 1957, 34909

Author : Margunskiy, S.P.
Inst : not given
Title : The Fundamental Results of the Scientific Activity of the Academy of Sciences of the Belorussian SSR During 1954

Orig Pub: Izv. AN BSSR, 1955, No 1, 3-13

Abstract: The plan for scientific work was successfully fulfilled by the Academy of Sciences of the Belorussian SSR. In the section of biological and agricultural sciences, a solution was arrived at on the question of the transformation of the nature of Polesye; practical measure for the increase of the productivity of various agricultural crops on peatbog and turfy podsol soils. A new kind of winter wheat was developed, the Golden; a more effective feeding for pigs was worked out; a study was made of the water fowl of the Belorussian SSR and the fish of the Neman river basin; work was completed on the fourth volume of the work

Card : 1/2

MARGUNSKIY S P.

MARGUNSKI, S.P.

Victory of the October Socialist Revolution and the establishment of the Soviet regime in White Russia. Vestsi AN BSSR no.5:3-10 S-O '54. (MLRA 8:9)

1. Chlen-korespandent Akademii navuk BSSR
(White Russia--Revolution, 1917-1921)

MARGUNOV, Ya. (Groznyy)

A millionaire. Izobr. i rats. no.8:18-19 Ag '59. (MIRA 13:1)

(Krishtopov, Georgii Nikolaevich) (Groznyy--Oil reservoir engineering)

MARGUN, N. I.

KUTOVOY, Ye.A., inzhener; MARGUN, N.I., inzhener.

Establishing regional bases in Stalino Mine Building Trust. (MIRA 10:7)
Shakht.stroi. no.2:26-27 F '57.

1. Trest Stalinshakhtostroy.
(Donets Basin--Mining buildings) (Building materials)

STYRIKOVICH, M.A., akademik; MARGULOVA, T.Kh., doktor tekhn. nauk, prof.

Thermal network of blocks with supercritical parameters and water condition requirements. Teploenergetika 12 no.7 [illegible] Jl '65. (MIRA 18:7)

1. AN SSSR i Moskovskiy energeticheskiy institut.

AKOL'ZIN, P.A.; GERASIMOV, V.V.; KASPEROVICH, A.I.; MAMET, A.P.; MAN'KINA, N.N.; MARGULOVA, T.Kh.; MARTYNOVA, O.I.; MIROPOL'SKIY, Z.L.; Prinimali uchastiye: DYATLOVA, N.M.; BIKHMAN, B.I.; STYRINKOVICH, M.A., retsenzent; KOSTRIKIN, Yu.M., red.

[Water system of thermal electric power plants (ordinary and atomic)] Vodnyi rezhim teplovykh elektrostantsii (obychnykh i atomnykh). [By] P.A.Akol'zin i dr. Moskva, Energiia, 1965. 382 p. (MIRA 18:3)

STYRIKOVICH, M.A., akademik; MARGULOVA, T.Kh., doktor tekhn. nauk

Efficient water separating system of condensate fed 140 atm. (14 min/m^2) drum boilers. Elek. sta. 36 no.2:6-8 F '65.
(MIRA 18:4)

L 5293-66
ACC NR: AP5025073

SUB CODE: MM, GC/ SUBM DATE: 23Apr62/ ORIG REF: 000/ OTH REF: 000

0

GC
Card 2/2

L 5293-66 EWP(e)/EWT(m)/EPF(c)/EWP(i)/ETC/EWG(m)/EWP(t)/EWP(b) IJP(c)
ACC NR: AP5025073 JD/JG/WB/AT/WH SOURCE CODE: UR/0286/65/000/016/0157/0157

AUTHOR: Margulova, T. Kh.

41
03

ORG: none

TITLE: A method for protecting perlitic and ferritic steels and aluminum alloys from corrosion in aqueous media. Class 48, No. 165633

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 157

TOPIC TAGS: steel, aluminum alloy, complexone

ABSTRACT: This Author Certificate presents a method for protecting perlitic and ferritic steels and aluminum alloys from corrosion in aqueous media. The surfaces of products are treated with solutions of substances forming protective films on the metal. To increase the lasting and protecting quality of the coating, a surface is first treated with aqueous solutions of complexones such as salts of ethylenediamine tetracetic acid. This is first done at a temperature lower than that of the complexone decomposition, and then at a temperature above that of the complexone decomposition.

Card 1/2

UDC: 621.795.3

0701 0675

MARGULOVA, T.Kh., doktor tekhn. nauk, prof.; BELYAYEV, A.A., inzh.

Causes of iron oxide deposits in TP-80 boilers and measures for preventing them. Teploenergetika 11 no.9:45-47 S '64. (MIRA 18:2)

1. Moskovskiy energeticheskiy institut i Teploelektrotsentral' No.22 Moskovskogo rayonnogo upravleniya energeticheskogo khozyaystva.

MARGULOVA, T.Kh., doktor tekhn. nauk; STERMAN, L.S., doktor tekhn. nauk; KAYDUK, K., inzh.

Composite atomic electric power plants and indices of their thermal efficiency. Teploenergetika 11 no.6:7-10 Je '64. (MIRA 18:7)

1. Moskovskiy energeticheskiy institut.

MARGULOVA, T.Kh., doktor tekhn.nauk, prof.

Effect of the inequality of heat flow on deposits in steam generating pipes. Teploenergetika 11 no. 1:43-45 Ja '64. (MIRA 17:5)

1. Moskovskiy energeticheskiy institut.

ACCESSION NR: AP4037631

efficiency of the nuclear unit. Total heat consumption is calculated and the electrical efficiency of the plant is represented graphically as a function of the fraction of electric power generated in the nuclear unit for various initial parameters of both units; also, plant efficiency is tabulated for various parameters. Orig. art. has: 11 formulas, 4 figures, and 1 table.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Institute)

SUBMITTED: 00 DATE ACQ: 16Jun64 ENCL: 00

SUB CODE: NP NO REF SOV: 003 OTHER: 002

Card 2/2

ACCESSION NR: AP4037631 S/0096/64/000/006/0007/0010

AUTHOR: Margulova, T. Kh. (Doctor of technical sciences); Sterman, L. S. (Doctor of technical sciences); Khayduk, K. (Engineer)

TITLE: Combined atomic power plants and their thermal efficiency indices

SOURCE: Teploenergetika, no. 6, 1964, 7-10

TOPIC TAGS: atomic power plant; atomic reactor, combined atomic power plant, reactor efficiency, reactor operation

ABSTRACT: Great interest is being shown in the higher efficiency of combined atomic power plants operating on both organic and nuclear fuels. The construction of many new plants is anticipated within the next decade. The thermal unit of the combined plant makes it possible to superheat the steam from the nuclear unit. Superheating of steam generated in both the thermal and nuclear units can be accomplished in the convective gas conduits of the boiler unit. Thus, superheaters can be made of ordinary steels, and the operating conditions would be the same as in ordinary boilers. Two thermal schemes for a combined plant are presented in which thermal and nuclear units operate at 1) the same pressure and 2) at different pressures. In each case, there is a considerable increase in the thermal

Card 1/2

GOLUBTSOV, V.A., prof.; STYRIKOVICH, M.A., prof. MARGULOVA, T.Kh., doktor tekhn. nauk, prof.

Water cycle norms of thermal electric power plants. Teploener-getika 10 no.10:79-81 O '63 (MIRA 17:7)

1. Moskovskiy energeticheskiy institut. 2. Chleny-korrespondenty AN SSSR (for Golubtsov, Styrikovich.

MARGULOVA, T.Kh., doktor tekhn. nauk, prof.

Problems of the development of nuclear power engineering and their relationship with ordinary thermal power engineering. Teploenergetika 10 no.12:6-7 D '63. (MIRA 17:8)

1. Moskovskiy energeticheskiy institut.

Steam superheat ...

separate fossil fuel furnace raises some saturated steam and provides all the superheat. As the nuclear unit cannot operate without the fossil fuel unit, the latter must have 100% standby capacity. A circuit of this type is advantageous when the steam conditions are high, particularly as it permits the use of standard reheat type turbines. Circuits which could be used in nuclear power stations with super critical steam conditions are briefly described. In supercritical conditions the difference between the superheater tube wall temperature and steam temperature is less and this permits certain simplifications in design. There are 2 figures.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Engineering Institute)

Card 2/2

MARGULOVA, Tereza Khristoforovna. Prinimali uchastiye: STERMAN, L.S.; RASSOKHIN, N.G.; DEMENT'YEV, B.A.; BERGEL'SON, B.P.; MIROPOL'SKIY, Z.L., red.; LARIONOV, G.Ye., tekhn. red.

[Design and calculations of steam generators of atomic electric power plants] Raschet i proektirovanie parogeneratorov atomnykh elektrostantsii. Moskva, Gosenergoizdat, 1962. 143 p. (MIRA 15:4)

(Boilers)

S/096/62/000/006/007/011
E194 /E454

AUTHOR: Margulova, T.Kh., Doctor of Technical Sciences, Professor

TITLE: Steam superheat at nuclear power stations

PERIODICAL: Teploenergetika, no.6, 1962, 39-41

TEXT: The capital cost and the cost of power generated in the nuclear power stations could be reduced by the use of superheat. Various steam circuits could be used to this end. A double circuit arrangement with one heat exchanger to produce saturated steam and another to provide superheat requires a complicated and expensive superheater. This can be avoided by providing superheat directly within the reactor but then some of the steam becomes active and, in any case, the superheater ducts inside the reactor are expensive. Superheat can also be provided by burning fossil fuel in a separate superheater, using the reactor to provide saturated steam. One difficulty here is that the superheater tubes in the furnace operate under very difficult conditions and accordingly other combined nuclear and fossil fuel arrangements are described. One arrangement is to have the reactor provide the main output of saturated steam whilst a

MARGULOVA, T.Ch. [Margulova, T.Kh.]; STERMAN, L.S.

Methods of increasing the efficiency of nuclear power stations with gas-cooled reactors. Jaderna energie 6 no.3:74-79 Mr '60.

1. Katedra jadernych elektraren, Moskevsky energeticky institut, Moskva.

MARGULOVA, T.Kh., doktor tekhn.nauk, prof.; STYRIKOVICH, M.A., doktor tekhn.nauk, prof.

Heat and power engineering as carried out in the plan of the State Commission for the Electrification of Russia down to the present day. Trudy MEI no.33:41-78 '60. (MIRA 15:3)

1. Chlen-korrespondent AN SSSR (for Styrikovich).
(Electric power production)

with regenerative heating) of $t_{T,2}$. In conclusion, the results obtained are briefly discussed. There are 5 figures.

SUBMITTED: September 3, 1959

X

An Increase in the Efficiency of Gas-cooled Power Reactors

of the gas and constant high pressure with an increase in feed-water temperature; this exerts a negative influence upon efficiency. Fig. 2 shows the efficiency changes due to feed-water temperature (for one- and two-pressure systems). Fig. 3 shows the maximum efficiency with and without regenerative heating as function of the coolant temperature at the input (at a constant output temperature = 375°C) for one- and two-pressure cycles. It is found that regenerative heating in one-pressure systems leads to an increase in efficiency only if the input temperature of the coolant $t_{T,2}$ is above about 170°C, which is the case for two-pressure cycles at much lower temperatures. Besides efficiency, also the losses due to coolant circulation increase with an increase of this temperature. If these losses are taken into account, the maximum efficiency for the case of feed-water regenerative heating for one- and two-pressure systems can be calculated; Fig. 4 shows the dependence of this efficiency on coolant temperature. As may be seen herefrom, there exists an optimum value of $t_{T,2}$, which corresponds to the maximum efficiency. Fig. 5 shows the dependence of this efficiency (in consideration of losses and

4

S/096/60/000/010/022/022
E194/E135

AUTHORS: Margulova, T.Kh., Akol'zin, P.A., Korneyeva, L.V., Lipanina, A.A., and Khlupnov, V.Ye.

TITLE: An Investigation of Corrosion under Stress of Samples of Steel 1Kh18N9T at High Pressure

PERIODICAL: Teploenergetika, 1960, No 10, pp 95-96

TEXT: Results are given of investigations of austenitic steel 1Kh18N9T in water media containing chlorine ions at pressures of 200 atm, t = 364 °C, under static conditions (the concentration of chlorine ions ranged from 100 to 1600 mg/litre). The specimens were investigated in deoxygenated solution after austenisation at t = 1050 °C with and without work hardening. The tests lasted 400 hours.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Institute)

Card 1/1

81745
S/089/60/008/05/04/008
B006/B056

21.1920

AUTHORS: Margulova, T. Kh., Sterman, L. S.

TITLE: An Increase in the Efficiency of Gas-cooled Power Reactors 19

PERIODICAL: Atomnaya energiya, 1960, Vol. 8, No. 5, pp. 448 - 451

TEXT: An increase in the cooling gas temperature at the output of the reactor leads to an increase in efficiency. The present paper deals with problems connected with the determination of the optimum (material-dependent) temperature. First, several details concerning coolant circulations with one, two, and three pressures are discussed. Fig. 1 shows the change in the efficiency η_e with pressure in the high-pressure circulation of a device operating on the basis of the two-pressure system. The curves hold for the case in which no regenerative heating of the feed water occurs and the gas temperature at the reactor output amounts to 375°C. In a gas-cooled reactor the steam pressure falls in [illegible]-pressure cycle in the case of fixed in- and output temperatures

Die Wahl des Lehrstoffes sowie die Art seiner Behand-
lung und Prüfung entscheidet der Lehrstuhl und die
Fakultät (bei Berücksichtigung des Einsatzes des zu-
künftigen Ingenieurs und im Rahmen der lehrplanmäßig
festgesetzten Stundenzahl).

Neben den in den Tabellen 1, 2 und 3 angegebenen
Fächern enthält der Lehrplan folgende Disziplinen
praktische Ausbildung am Wärmekraftwerk des
Moskauer Instituts für Energetik,
Lehr- und Forschungsarbeiten.
Die praktische Ausbildung am Wärmekraftwerk erfolgt
in der Turbinen- und der chemischen Anlage an den
konventionellen Einrichtungen und schließt die unmittel-
bare Beteiligung des Studenten an den Anfahroperationen
und der Bedienung der Kraftwerksaggregate ein. An der
Kesselanlage des Wärmekraftwerkes wird die praktische
Ausbildung des Studenten der Fachrichtung „Projek-
tierung und Betrieb von Kernenergieanlagen" an einem
speziellen Aggregat vorgenommen, das nach dem Schalt-
bild eines Kernkraftwerkes mit Wasser-Wasser-Reak-
toren auf Zweikreislaufverdampfung umgestellt ist. Für
diese Ausbildung am Wärmekraftwerk des Moskauer
Instituts für Energetik steht dem Studenten des
8. Semesters 1 Tag der Woche (~ 6 Std.) zur Verfügung.
Lehr- und Forschungsarbeiten werden von allen Stu-
denten im 9. und 10. Semester durchgeführt. Jeder Stu-
dent (bzw. jede Gruppe von 2 oder höchstens 3 Studenten)
erhält die Aufgabe, eine kleinere — meistens experimen-
telle — Arbeit selbständig durchzuführen. Die Thematik
dieser Arbeiten entspricht der Thematik der Forschungs-
aufträge des Lehrstuhls. Diese Form der Ausbildung
trägt zur Auflockerung des Lehrstoffes bei, regt den
Forschungstrieb an und fördert die Forschungsaufträge
des Lehrstuhls.

Schlußbemerkungen

Heute kann bereits gesagt werden, daß die Ausbildung
in der Fachrichtung „Projektierung und Betrieb von
Kernenergieanlagen" am Moskauer Institut für Energetik
planmäßig und mit bestimmter Zielsetzung erfolgt. Wie
aus dem Obengesagten folgt, ist das Ausbildungsziel nicht
der theoretische Physiker, sondern der Ingenieur für
Wärmetechnik auf dem Spezialgebiet Kernenergetik. Die
Kernenergetik entwickelte sich nicht aus der Wärme-
technik. Deshalb kann man nicht alle technischen Lösun-
gen in der konventionellen Wärmetechnik mechanisch
auf die Kernenergetik übertragen, man kann aber an-
dererseits auch nicht sagen, daß sich die reichen wissen-
schaftlich-technischen Erfahrungen der konventionellen
Wärmetechnik überhaupt nicht in der Kernenergetik
anwenden ließen. Deshalb ist im Lehrplan der Fach-
richtung „Projektierung und Betrieb von Kernenergie-
anlagen" auch der wärmetechnischen Allgemeinausbildung
der Studenten hinreichend Raum gelassen (768 Stunden
sowie 4 Belege, 1 großer Beleg und 2 Entwürfe).

In dem hier untersuchten Lehrplan ist nicht vorge-
sehen, Ingenieure und Technologen für die Fertigung
von Kernkraftaggregaten und ihren Bauteilen auszu-
bilden. Diese Fachleute würden an anderen Fakultäten
wie der Fakultät für Energiemaschinenbau ausgebildet
und erhielten — nebenbei gesagt — eine weit weniger
spezielle Ausbildung auf dem Gebiet der Kernenergetik,
die sich wahrscheinlich mit Erfolg auf Praktikum und
Diplomarbeit beschränken würde.

Nach Beendigung seiner Ausbildung wird der Ingenieur
der Fachrichtung „Projektierung und Betrieb von Kern-
energieanlagen" in der Projektierung, Forschung, Repa-
ratur und dem Betrieb von Kernenergieanlagen allgemein
bzw. ihrer Einzelaggregate tätig sein. Diese Fachinge-
nieure können dann in Projektierungs- oder Konstruk-
tionsbüros, Forschungs- und Betriebsorganisationen ein-
gesetzt werden. Die umfangreiche Spezialausbildung
(944 Stunden Spezialfächer, 2 Entwürfe) lassen diese
Ingenieure relativ schnell zu vollwertigen Ingenieuren
auf dem Gebiet der Kernenergetik werden.

(Übersetzt von Dipl.-Math. [illegible], Berlin;
bearbeitet von Dipl.-Phys. [illegible], [illegible])

MARGULOVA, T. Kh.

Ausbildung von Fachingenieuren auf dem Gebiet der friedlichen Anwendung der Kernenergie am Moskauer Institut für Energetik[1])

(Lehrstuhl für Kernkraftwerke am Moskauer Institut für Energetik)

T. Ch. Margulova

Die Ausbildung von Fachingenieuren auf dem Gebiet
der friedlichen Anwendung der Kernenergie am Moskauer
Institut für Energetik (Московский энергетический
институт, МЭИ) erfolgt an der Fakultät für Wärme-
technik. An dieser Fakultät wurden und werden ver-
schiedene Fachrichtungen gelehrt, die die Studenten
nach dem zweiten Studienjahr wählen. In den ersten
beiden Studienjahren erhalten die Studenten nach einem
für alle Fachrichtungen verbindlichen Lehrplan eine
allgemeintechnische Ausbildung.

Mit Beginn des dritten Studienjahres tritt eine Diffe-
renzierung in den Lehrplänen auf. Neben Vorlesungen
für alle Fachrichtungen der Fakultät werden dann auch
Vorlesungen gehalten, die einen Querschnitt über die ge-
wählte Fachrichtung vermitteln, sowie Spezialvorlesun-
gen unmittelbar für die gewählte Fachrichtung. Die An-
zahl der Spezialvorlesungen nahm mit der Entwicklung
der Kerntechnik und der Verbesserung der Lehrmethoden
zu. So gab es zunächst – im Jahre 1955, als die ersten
Absolventen der Fachrichtung Kernenergetik das Institut
verließen – noch keinen speziellen Lehrplan für diese
Fachrichtung. Erst später wurde es notwendig, einen
selbständigen Lehrplan aufzustellen.

Anfänglich wurden die Fachingenieure für Kern-
energetik nach dem Lehrplan der Fachrichtung „Wärme-
physik" ausgebildet, der durch die entsprechenden Spe-
zialfächer (Kernphysik, Dosimetrie und Strahlenschutz,
Energiereaktoren) ergänzt worden war. Diese minimal-
erforderlichen Fächer bestimmten neben der prak-
tischen Arbeit vor der Diplomprüfung und der Diplom-
arbeit auch die Spezialausbildung des Fachingenieurs
auf dem Gebiet der Kerntechnik. Der im Jahre 1956 be-
stätigte Lehrplan für die Fachrichtung „Wärmephysik"
ermöglichte damit die Ausbildung von Fachingenieuren
und Fachwissenschaftlern sowohl auf dem Gebiet der
konventionellen Wärmeenergetik als auch der Kernener-
getik. Dieser Lehrplan und seine Einzelheiten sind hin-
reichend bekannt, so daß nicht näher darauf eingegangen
zu werden braucht.

Durch die Entwicklung der Kerntechnik und die ge-
sammelte Erfahrung über die Spezialausbildung sowie
die nunmehr zur Verfügung stehenden pädagogischen
Kader auf diesem Gebiet war es dem Moskauer Institut
für Energetik möglich, den Lehrstoff zu verbessern und
zu vertiefen. Das Ministerium für das Hochschulwesen
der UdSSR bestätigte die Einrichtung einer speziellen

Fachrichtung „Projektierung und Betrieb von Kern-
energieanlagen", wobei das Ziel der Fachrichtung
„Wärmephysik", Fachingenieure sowohl für die konven-
tionelle Wärmetechnik als auch für die Wärmetechnik
auszubilden, soweit sie sich auf die Kernenergetik be-
zieht, erhalten blieb. Für die neue Fachrichtung wurden
ein Grund- und mehrere Übergangslehrpläne ausge-
arbeitet. Heute existiert bereits ein fester, vom Ministe-
rium für das Hochschulwesen der UdSSR bestätigter Lehr-
plan, der hier im einzelnen besprochen werden soll.

Im ersten Studienjahr ist die theoretische Ausbildung
mit einer praktischen Arbeit in der Produktion gekoppelt.
Betrieb und Kollegen am entsprechenden Arbeitsplatz
sind für die Wahl der zukünftigen Fachrichtung des
Studenten verantwortlich. Vom zweiten bis einschließlich
fünften Studienjahr wird im Institut gearbeitet. Obgleich
die Studenten während dieser Zeit nicht unmittelbar am
Produktionsprozeß teilnehmen, ist die Thematik der
praktischen Arbeiten, der Vorträge und Forschungsauf-
gaben auf die konkreten Bedürfnisse der Produktion
eingestellt. Zusätzlich sind in diesem Lehrabschnitt aus-
führliche Betriebsbesichtigungen vorgesehen. So z. B. für
die Fachrichtung „Projektierung und Betrieb von Kern-
energieanlagen" folgende:

von Kesselbaubetrieben, um die Studenten mit den
Verfahren zur Fertigung von Reaktordruckgefäßen
und Dampferzeugern sowie der Heizflächen für die
Wärmeaustauscher vertraut zu machen.

von Kondensations-Wärmegroßkraftwerken, um sie an
die Fragen des Betriebes und der Reparatur von
Dampfturbinenanlagen (Dampfturbinen, Konden-
satoren, Entgaser, Pumpen und Vorwärmer) und
chemischen Anlagen (Wasserenthärtung, chemische
Überwachung im Kraftwerk) heranzuführen.

Nach Beendigung der Institutsausbildung legen die
Studenten im 11. Semester ein [illegible] Praktikum un-
mittelbar am Ort ihrer zukünftigen Arbeit ab. In diesem
Lehrabschnitt werden noch einige Spezialgebiete studiert.
Der konkrete Inhalt dieser Fächer und auch die Thematik
der Diplomarbeit, die nach dem 11. Semester abzufassen
ist, hängen eng mit der zukünftigen Arbeit des Fach-
ingenieurs zusammen. Bezeichnung und Inhalt dieser
Spezialgebiete sind für die einzelnen Studenten unter-
schiedlich. Die entsprechenden Probleme können von
den Studenten selbständig am Praktikumsort gelöst
werden, falls keine Interpretation durch Vorlesungen am
Institut notwendig ist, sie können aber auch in den Abend-
stunden am Institut diskutiert werden.

[1]) Nach einem Manuskript, das der Redaktion freundlicher-
weise von Frau Prof. Margulova zur Verfügung gestellt worden ist.

3

81380

Z/038/60/000/03/01/007

Methods of Increasing the Efficiency of Nuclear Power Plants With a Gas-Cooled Reactor

stressed, however, that even at the present state of development in equipment and heat potentials of working media considerable improvements in efficiency can be achieved if we succeed in creating such operating conditions as will produce an optimum thermal efficiency. There are 8 diagrams.

ASSOCIATION: Chair of Nuclear Power Plants of the Moscow Power Engineering Institute, Moscow

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Methods of Increasing the Efficiency of Nuclear Power Plants With a Gas-Cooled Reactor

used. Figure 3 shows typical curves indicating the changes of ultimate efficiency in dependence on the temperature of the feed water for cycles with one and two pressures and 1, 3, 5 and 10 regenerative heaters respectively. It can be seen that under the conditions considered the most favorable cycle is the one with a regenerative heating to temperatures of the feed water t_{nv} of from 100 to 110°C, and in a two-pressure cycle to a t_{nv} of from 100 to 130°C. It is possible to establish in a similar way the parameters of the low-pressure and high-pressure steam respectively and the temperature of the feed water, which at given values of t_{p1} and t_{p2} produce an optimum thermal efficiency, as is shown in Figure 4. With the increasing temperature of the gas leaving the steam generator the efficiency on the terminals of the electric generator increases constantly, too. With the increasing t_{p2}, however, increase also the losses by the circulation of the cooling gas, resulting in turn, in an impairment of the ultimate efficiency. The relations in this respect are shown in Figures 5 and 6. It can be seen from what has been said here that the economy of nuclear power plants with gas-cooled reactors can be further increased by improving their equipment, by a gradual transition to higher temperatures of the coolant in the primary circuit and to [illegible] parameters, by perfecting the thermal cycles, etc. It has to be

Methods of Increasing the Efficiency of Nuclear Power Plants With a Gas-Cooled Reactor

the pressure at the outlet side of the turbine. It is further assumed that the pressure in the condenser is 0.05 atm and the losses for the discharge velocity are 5.0 kcal/kg, and that the output of the turbine will not drop below the range of from 70 to 100 Mw. As expected, the η_{el} grows with the increasing temperature of the cooling gas on the inlet side of the reactor. The electric efficiency (efficiency on the terminals of the generator), however, changes also in dependence on the steam pressure p_v chosen in the high-pressure circuit in such a manner that to each value of t_2 a specific value p_v corresponds, representing the highest value of the electric efficiency. In power plants operating with conventional thermal cycles, the thermal efficiency grows proportionally to the number of regenerative heaters and to the increasing temperature of the feed water. In a nuclear power plant of the type considered here - if the temperature of the feed water is increased (at a constant t_{p1} and t_{p2} and an arbitrary p_v) - the pressure of the low-pressure steam decreases and its quantity increases with respect to the unchanging quantity of the high-pressure steam, thus affecting the thermal efficiency. Consequently, regenerative heating can produce, under conditions considered here, both positive and negative effects, depending on the number of regenerative heaters

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21.1920

AUTHORS: Margulova, T.Kh. and Sterman, L.S.

TITLE: Methods of Increasing the Efficiency of Nuclear Power Plants With a Gas-Cooled Reactor

PERIODICAL: Jaderná energie, 1960, No. 3, pp. 74 - 79

TEXT: The article analyzes the main factors influencing the efficiency of nuclear power plants with a gas-cooled (CO_2) reactor, namely the pressure of the coolant, the size of the heat-exchange area and the temperatures of the coolant on the inlet and outlet sides of the reactor. The calculations, on which this article is based, have been made at the Chair of Nuclear Power Plants of the Moscow Power Engineering Institute, in collaboration with 2 Czechoslovak students, Plávka and Vlček, who are studying the special field of "Designing and operation of nuclear power equipment" at the MEI. In these calculations it is assumed that the minimum difference of temperatures between the cooling gas and the working medium at its boiling point is 20°C, and the superheating of the steam in superheaters is 30°C. The pressure losses in the piping leading to the turbine and in the regulation valve are assumed to be 5% of the initial pressure each, and the pressure losses in the piping and fittings of the regenerative heaters are 10% of

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S/081/61/000/020/055/089
B102/B147

AUTHOR: Margulova, T. Kh.

TITLE: Applicability of direct-flow systems for steam generators made of austenitic stainless steels

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 261, abstract 20I167 (Sb. "Korroziya reaktorn. materialov". M., Atomizdat, 1960, 163 - 167)

TEXT: It is noted that direct-flow steam generators made of austenitic stainless steels require accurate standardization of Cl^- in the feed water. Similar steam generators were found to be a suitable means for producing at pressures of 80 atm and more. [Abstracter's note: Complete translation.]

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Margulova, T. Kh. Effect of the Thermal Schemes of Installations, Heat-Engineering Arrangement, and Construction of Apparatus on the Course and Character of Corrosion Processes 151

Margulova, T. Kh. On the Applicability of the Uniflow Principle for Steam Generators Made of Austenitic Stainless Steels 163

Tolstaya, M. A., G. N. Gradusov, and S. V. Bogatyreva. Effect of Electropolishing on the Water Corrosion Resistance of the 1Kh18N9T Steel and of the Type 20 Carbon Steel at High Temperatures 167

Gerasimov, V. V., A. I. Gromova, and E. T. Shapovalov. Investigating the Corrosion Resistance of Stainless Steels in a Steam-Water Mixture at Temperatures Above the Critical Point and at High Pressure 185

Corrosion of Nuclear- (Cont.)

water with various compositions, factors of metal stress corrosion, intergranular corrosion, the mechanism of corrosion cracking, and the corrosion resistance of aluminum and zirconium alloys. Conclusions based on test results are included. No personalities are mentioned. Most of the articles are accompanied by references. Of 238 references 97 are Soviet.

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Gulyayev, V.N., and P.A. Akol'zin. Methods of Testing the Corrosion-Creep Strength of Metals at High Pressures and Temperatures

MARGULOVA, T. Kh.

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PHASE I BOOK EXPLOITATION SOV/5256

Gerasimov, Valentin Vladimirovich, ed., Candidate of Chemical Sciences.

Korroziya reaktornykh materialov; sbornik statey (Corrosion of Nuclear-Reactor Materials; a Collection of Articles) Moscow, Atomizdat, 1960. 284 p. 3,700 copies printed.

Ed.: A.I. Zavodchikova; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This collection of articles is intended for mechanical and metallurgical engineers as well as for scientific research workers concerned with the construction of nuclear reactors.

COVERAGE: The water corrosion of various types of stainless steel and alloys under high pressures and temperatures is investigated from the point of view of the use of these materials for the construction of nuclear reactors. Attention is given to the following: the use of oxygen for protecting steel against corrosion, the behavior of steel in high-temperature

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A201/A026

Some Problems of the Development of Nuclear Power Plants With Reactors Using Water, Water-Vapor Mixture, or Superheated Steam as Heat Removal Media

design featuring an arrangement comparable to that shown in Figure 4, but operating at high steam parameters. It is a complete two-loop arrangement with a separate low-pressure steam generator whose flow-chart is shown in Figure 8. Pressure and temperature in the calandria and superheater tubes correspond with those of the steam at the inlet of the turbine. The steam generator does not require shielding since only slightly active steam is used as heat-exchanging medium. The secondary-loop water requires but inexpensive treatment with ion exchangers operating at temperatures at which the corrosion of austenitic stainless steel parts in Cl environment is negligible and the water need not be demineralized. The use of austenitic steel is also greatly reduced. For this design, the steam at the outlet of the high-pressure turbine has to have a pressure above 1 atm and a moisture content not exceeding 11%. A standard VK-100 turbine can be used in this arrangement requiring only slight modifications. - Based on the arrangements shown in Figures 4 and 8, a design of a nuclear power plant with turbines using supercritical steam parameters is proposed. Its flow-chart is shown in Figure 9. It has a two-loop arrangement with a separate low-pressure

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Some Problems of the Development of Nuclear Power Plants With Reactors Using Water, Water-Vapor Mixture, or Superheated Steam as Heat Removal Media

steam generator. The principal advantage of this design is that it does not require a steam reheater. The turbines for this arrangement have to be such that the steam moisture at the low-pressure turbine section must not exceed 11 - 13%, the temperature gradient between the heat-exchanging and working media has to be 15°C and the initial steam pressure of the secondary loop has to be higher than 1 atm. It can be seen that for nuclear power plants with reactors using either water, water-steam-mixture, or superheated steam as heat-removing media a two-loop arrangement is the most advantageous and safest design. (Translator: J. Koryčánek). There are 9 figures.

ASSOCIATION: Moskevský energetický institut (Moscow Power Institute)

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Z/038/60/000/007/001/006
A201/A026

Some Problems of the Development of Nuclear Power Plants With Reactors Using Water, Water-Vapor Mixture, or Superheated Steam as Heat Removal Media

vides for forced circulation inside the reactor and moisture separation outside. However, several proposals for reactors with natural circulation have been worked out, too. - The second group with turbines using high-parameter steam also comprises 4 design proposals whose flow-charts are shown in Figures 5 through 8. Of these, the design shown in Figure 7 was prepared for a nuclear power plant now being built in the USSR. It is a modified (incomplete) two-loop design with a separate high-pressure steam generator. The steam of the secondary loop is reheated in the reactor core, which permits to reduce temperature and pressure in the calandria tubes. The disadvantages of this design are the following: 1) The entire power plant equipment operates with radioactive steam. 2) Due to the high pressures and temperatures, the heat-exchanger surfaces have to be made of austenitic stainless steel. 3) The steam generator must be shielded as radioactive water of the primary loop is used as heat-exchanging medium. 4) The calandria tubes of the reactor operate at a pressure substantially higher than the working pressure at the turbine inlet. 5) The residue of the steam generator is radioactive and requires special processing equipment. - Also feasible is a

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is dealt with more in detail describing nuclear power plant designs with turbines using saturated steam, high-parameter steam, or supercritical-parameter steam. In the first group, 4 designs are proposed with their flow-charts shown in Figures 1 through 4. Of these, the design shown in Figure 4 combines the advantages of the previous three, doing away with a number of their disadvantages at the same time. It is a boiling-water, two-loop design with the steam-generator operating pressure only slightly above the atmospheric pressure. This feature eliminates the need for austenitic stainless steel in the heat exchanger and has the additional advantage that the steam generator requires only light shielding or none at all since only slightly radioactive steam is used as heat-exchanging medium. The disadvantage of this design is that the main stage of the turbine uses radioactive steam. In designing turbines for this arrangement, the following requirements have to be observed: the steam moisture at the outlet of the first turbine stage must not exceed 11 - 13%; the steam pressure at the inlet to the second turbine stage has to be higher than 1 atm; the temperature gradient between the heat-exchanging and working media has to be 15°C. The design pro-

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Some Problems of the Development of Nuclear Power Plants With Reactors Using Water, Water-Vapor Mixture, or Superheated Steam as Heat Removal Media

of 2.5 atm and a Cl concentration of 200 mg/l there was no corrosion at all, while considerable corrosion was observed at a pressure of 200 atm and a Cl concentration of only 1 mg/l. These results demonstrate the necessity of as complete a degasing of the feed water as possible and such a selection of a thermal design of the power plant that the heat-exchanger surfaces made of austenitic stainless steel be in the range of possibly lowest pressures (temperatures) for both the heat-exchanging and working media. The problem of the replacement of austenitic stainless steels by other steel types can be solved by the following three approaches: 1) Introduction of such water treatment methods as would greatly reduce corrosion processes, especially by maintaining a sufficient alkalinity of the water. 2) Use of such steel types that would be free of shortcomings of austenitic steels and yet have a corrosion resistance in high-purity water only slightly less than austenitic steels. Most promising in this respect appear to be ferritic steels without nickel and with a minimum chromium content of 12%. 3) Development of such thermal designs of nuclear power plants at which the corrosion processes would rapidly decrease. In the following the latter approach

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A201/A026

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26.1130 26.1310 26.1650

AUTHOR: Margulova, T.Kh.

TITLE: Some Problems of the Development of Nuclear Power Plants With Reactors Using Water, Water-Vapor Mixture, or Superheated Steam as Heat Removal Media

PERIODICAL: Jaderná energie, 1960, No. 7, pp. 222 - 227

TEXT: The article analyzes some design problems of nuclear power plants with reactors using either water, water-steam mixture, or superheated steam as heat removal media. The author presents several possible designs of such plants with special attention paid to the possibility of replacing expensive austenitic stainless steels by less expensive steel types for reactor building. Extensive corrosion tests with austenitic stainless steels were conducted at the Department of Nuclear Power Plants of the Moscow Power Institute. The test were made in water within a pressure range of 2.5 - 100 atm at boiling temperatures for various concentrations of chlorine and oxygen in the water. They revealed that the corrosion depended on the oxygen content (no corrosion was observed in the absence of oxygen) and still more on the pressure (temperature) of the medium. At a pressure

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MARGULOVA, T. Ch.

Some problems of development of nuclear power stations with reactors using water, water-steam mixture, or superheated steam as a heat removal medium. Jaderna energie 6 no.7:222-227 Jl '60.

1. Moskevsky energeticky institut

MARGULOVA, T.Kh., dcktor tekhn.nauk

Some problems in the development of atomic power plants with reactors using water, water-vapor mixtures and vapor as coolants. Teploenergetika 7 no.10:3-5 O '60. (MIRA 14:9)

1. Moskovskiy energeticheskiy institut.
(Atomic power plants)

MARGULOVA, T.Kh.

Efficient water operating conditions and thermal schemes of atomic power plants with high parameters and superheating of the steam in the reactor. Nauch.dokl.vys.shkoly; energ. no.2:311-318 '59. (MIRA 13:1)

1. Rekomendovana kafedroy atomnykh elektrostantsiy Moskovskogo energeticheskogo instituta.
(Atomic power plants)

The Use of Stepwise Evaporation and Steam Scrubbing in the Steam-raising Installations of Atomic Power Stations

case a somewhat different circuit, illustrated in Fig 4, may be preferable. Here the second stage of evaporation operates at a pressure lower than the pressure in the first stage of evaporation and delivers saturated steam to the reheater. This arrangement may be cheaper. It is considered that both stepwise evaporation and steam scrubbing with feed water should find wide application at atomic power stations.

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There are 4 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Institute)

The Use of Step wise Evaporation and Steam Scrubbing in the Steam-raising Installations of Atomic Power Stations

and it suffices to have 5% of the evaporation in the second stage. Steam-raising in the second stage of evaporation requires the heating surface to be heated by a heat-transfer medium at a higher pressure than in the rest of the steam-raising system. This requires an additional circulation pump, which passes water through the reactor and over the second stage heating surface before being throttled down to the drum pressure. The steam from the second stage of the evaporation may be delivered either to the steam volume of the first stage, as shown in Fig 2a, or to the water volume of the first stage, as shown in Fig 2b. Part of the feed water may be delivered to the steam-washing device of the second stage, as shown in Fig 2B. The merits of these circuits are discussed and it is concluded that the choice will depend on design considerations; the circuit of Fig 2b is probably the most suitable. The above discussion of water conditions in an atomic power station with superheat in the reactor is valid for high steam pressures. If super-high steam conditions are used with reheat, one of the circuits of Fig 2 may still be used, but in this

The Use of Stepwise Evaporation and Steam Scrubbing in the Steam-raising Installations of Atomic Power Stations

which is uneconomic. The method of stepwise evaporation can provide a solution to this problem. Fig 2 gives circuit diagrams of various possible methods of doing this. The zone of the greatest concentration of impurities and corrosion products is made the second stage of evaporation, and the latter is located outside the reactor. Therefore, phosphates can safely be introduced in the water to convert scale-forming salts into sludge, which can be removed by blow-down at the rate of 0.3 - 0.5%. The concentration of impurities in the second stage of evaporation, or in the installation as a whole in the absence of stepwise evaporation, can be expressed as a proportion of their concentration in the feed water. The ratio is given by Eq (1), and the corresponding ratio when stepwise evaporation is used is given by Eq (2). Fig 3 shows curves of the concentration of blow-down water as a function of the amount of steam raised in the second stage of evaporation for two different amounts of blow-down. Evidently there is no need to increase the overall blow-down rate above 0.5%

The Use of Stepwise Evaporation and Steam Scrubbing in the Steam-raising Installations of Atomic Power Stations

directly into the reactor; various possible ways of introducing the water are shown in Fig 1. Their merits are discussed and the circuit of Fig 1B is recommended because it permits of improved de-aeration of the feed water and de-activation of the steam. Accordingly the rest of the article is concerned exclusively with this circuit. Ordinary power station practice shows that there is always some leakage at the rolled ("expanded") condenser-tube joints, so that small amounts of cooling water leak into the condenser. This means that compounds of calcium and magnesium, and also corrosion products of brass and steel, can find their way into the condensate. In a single-circuit power station these impurities would reach the reactor. By using suitable steam purification inside the boiler the deposits may be removed from the boiler in the form of sludge rather than from the reactor in the form of scale. Water conditions in the reactor should be such as to prevent the formation there of scale or other deposits. With the usual rates of cooling-water contamination of condensate, deposit formation in the reactor could be prevented only by having 3% blow-down,

SOV/96-59-9-5/22

AUTHOR: Margulova, T.Kh (Doctor of Technical Sciences)

TITLE: The Use of Stepwise Evaporation and Steam Scrubbing in the Steam-raising Installations of Atomic Power Stations

PERIODICAL: Teploenergetika, 1959, Nr 9, pp 27-31 (USSR)

ABSTRACT: The method of stepwise evaporation which is widely used in ordinary power engineering to ensure purity of the steam can also be successfully applied in atomic power engineering, with certain modifications. In atomic power engineering the main object of stepwise evaporation is to reduce the contamination of the reactor water by dissolved impurities, especially corrosion products. This ensures freedom from deposits on the heating surfaces and reliable operation of the reactor. In addition, stepwise evaporation will permit reduction of the output of evaporative or other devices for treating reactor blow-down water and may in certain cases make possible the use of carbon steel in place of stainless steel. In atomic power stations with high steam pressure and super-heating in the reactor the use of a two-circuit construction complicates the installation. It would be very desirable to use a single circuit arrangement delivering the feed water

MARGULOVA, T.Ch. [Margulova, T.Kh.]; MEDONOS, S. [translator]

Education of experts in the peaceful use of nuclear energy. Jaderna energie 4 no.8:210-215 Ag '58.

AUTHOR: Margulova, T.Kh., Professor, Doctor of Technical Sciences SOV-3-58-10-13/23

TITLE: The Prospects of a Laboratory for Solving Special Problems (O perspektivakh odnoy problemnoy laboratorii)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 10, pp 69 - 70 (USSR)

ABSTRACT: On 20 March 1957, a thermo-physical laboratory for solving special problems was organized at the Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute). The author gives a brief review on its activities. She states the problems that were to be solved by the laboratory, the difficulties encountered, and points out that the works carried out have made the laboratory a leading organization in examining problems of modern power engineering. In the near future the themes and the volume of research will expand. She suggests that the Ministry convene a conference of supervisors of such laboratories for an exchange of experiences and opinion.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute)

Card 1/1

MARGULOVA, T.Kh.

Water-system problems of steam generators in atomic power plants. Nauch. dokl. vys. shkoly; energ. no.1:189-195 '58. (MIRA 11:10)

1.Rekomendovano kafedroy atomnykh elektrostantsiy Moskovskogo energeticheskogo instituta.
(Atomic power plants)

MARGULOVA, T.Kh., prof., red.; SHPIL'RAYN, E.E., red.; VORONIN, K.P., tekhn.red.

[Problems of corrosion and heat exchange in liquid metals. Translation from American and British sources] Nekotorye voprosy korrozii i teploobmena v zhidkikh metallakh. Moskva, Gos. energ.izd-vo, 1958. 39 p. (MIRA 11:9)

(Corrosion and anticorrosives)
(Heat--Transmission)
(Liquid metals)

generator, but this is not regarded as a disadvantage.
There are 7 figures, 3 tables.

ASSOCIATION: Moscow Power Institute (Moskovskiy Energeticheskiy Institut)

pressures, there will be no transfer of water from the second stage to the first. As both lots of blow-down water are active, they are both directed to a single evaporative installation. The corresponding circuit is seen in Fig.1b. Two other possible circuits are included in Fig.1. Calculations have been made to compare the circuits given in Fig.1; the main results are set out in Tables.1. - 3. and graphed on Figs.2. - 7. In each case the output of the evaporative equipment is assumed constant, also the thermal output of the reactor and steam generator. The various circuits are then compared and it is first shown that the circuit of Fig.1a. with parallel blow-down is the least favourable. By using the circuit of Fig.1b. the concentration of salt and corrosion products in the reactive water is only 2.3 times that in the feed water; thus it is 8½ times more pure than when the circuit of Fig.1a. is used. The use of stepwise evaporation in a single-circuit atomic power station with boiling-water reactors is only possible if the station circuit includes the separate steam

Margulova, T. Kh.

AUTHORS: Glazunov, A.A. and Margulova, T.Kh., Professors 3-9-30/31

TITLE: Dean's Duties (Ob obyazannostyakh dekana)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 9, pp 92 - 93 (USSR)

ABSTRACT: The obligations of a Dean are manifold. He conducts the scientific educational and methodical operations of the chairs and the faculty, solves crucial problems of faculty life, conducts the educational training, etc. For this task persons must be appointed who have the necessary methodical and pedagogical qualifications. The authors mention the various obligations of the Dean, such as the control of lecture courses, exercises, laboratory work and course projects, all of which have to correspond with the faculty outline. The Dean has also to supervise the equipment of laboratories, the supply of handbooks and appliances. The authors suggest the convening of an All-Union Methodical Conference of Deans to be followed up by bi-annual conferences.

ASSOCIATION: The Moskva Institute of Energetics (Moskovskiy energeticheskiy institut)

AVAILABLE: Library of Congress

Card 1/1

SOV/96-58-12-4/18

AUTHOR: Margulova, T.Kh. (Dr. Tech.Sci.)

TITLE: The Rational organisation of water conditions in single-circuit atomic power stations with boiling-water reactors. (Ratsional'naya organizatsiya vodnogo rezhima odnokonturnykh atomnykh stantsiy s kipyashchimi reaktorami)

PERIODICAL: Teploenergetika, 1958, No.12. pp. 22-26

ABSTRACT: A schematic pipework-circuit diagram of an atomic power station with boiling-water reactor and isolated steam generator is given in Fig.1a. and this is the circuit to which the article relates. The turbine takes saturated steam at two different pressures, from the reactor and from a steam generator. The heating surfaces of the steam generator and the associated pipework are made of stainless steel and the remaining pipework of carbon steel. With this circuit the boiler and steam generator are both blown down and receive feed water in parallel, which calls for the use of feed water of very high quality. If a stepwise evaporative circuit is used, the reactor can form the first stage of evaporation and by using maximum blow-down the impurities content of the water in it, and particularly that of corrosion products, can be greatly reduced. The steam generator is used as the second stage of evaporation and is fed only with water from the reactor, with or without an admixture of feed water. Since both reactor and steam generator are separate sets at different

Card 1/1

MARGULOVA, T.Kh., doktor tekhn.nauk, prof.

Advanced education in power engineering during the last 40 years in the U.S.S.R. Teploenergetika 4 no.11:40-45 N '57. (MIRA 10:10)

1.Moskovskiy energeticheskiy institut.
(Technical education)
(Electric engineering)

MARGULOVA, T.Kh., doktor tekhnicheskikh nauk.

Methods of insuring steam purity in high and superhigh pressure installations under construction. Energetik 5 no.3:12 Mr '57. (MLRA 10:3)
(Boilers)

Konfederatov, I.Ya., Doctor of Technical Sciences; Margulova, T.Kh., Doctor of Technical Sciences; Meshkov, V.V., Doctor of Technical Sciences; Petrov, G.N., Doctor of Technical Sciences; Sirotinskiy, L.I., Doctor of Technical Sciences; Styrikovich, M.A., Corresponding Member, USSR Academy of Sciences; and Shneyberg, Ya.A., Candidate of Technical Sciences. Ed.: Matveyev, G.A., Doctor of Technical Sciences; Technical Ed.: Medvedev, L.Ya.

PURPOSE: The book is intended for technicians in all branches of heat engineering.

COVERAGE: This book presents the development of the basic branches of heat engineering in the Soviet Union and it is the first volume of 3 volumes entitled History of Power Technology in the USSR. The first chapter gives a concise history of the development of heat engineering from its very beginning to the middle of the 19th Century when the fundamentals of the theoretical heat engineering were established. A detailed description of the development of heat engineering in pre-Revolutionary Russia is given in Ch. 2 to 5 and its status before 1917 is described. In the main part of the volume, Ch. 6 to 16, the development of various branches of the Soviet heat engineering is presented. The theoretical fundamentals of heat engineering, of manufacturing boilers, turbine installations of heat power plants, district heating, heat control, automation of thermal processes, and cooling techniques are covered extensively. Each chapter is supplemented with a bibliography. The book is illustrated with photographs, charts and diagrams, worked out by the authors of the respective chapters. At the end of the book there is a chronological list of significant events in the development of heat engineering.

MARGULOVA, T. Kh., (Doctor of Tecnical Sciences)

Moscow. Energeticheskiy institut

Istoriya energeticheskoy tekhniki SSSR v trekh tomakh. t. 1: Teplotekhnika (History of Power Engineering in the USSR in Three Volumes. v. 1: Heat Engineering) Moscow, Gosenergoizdat, 1957. 479 p. 5,000 copies printed.

Ed.-Compiler: Konfederatov, I.Ya., Dcotor of Technical Sciences; Authors: Badyl'kes, I.S., Dcotor of Technical Sciences; Belindkiy, S.Ya., Candidate of Technical Sciences; Gimmel'farb, M.L., Candidate of Technical Sciences; Kalafate, D.D., Candidate of Technical Sciences; Kertselliy, L.I., Professor; Kovalev, A.P., Doctor of Technical Sciences; Konfederatov, I.Ya., Doctor of Technical Sciences; Lavrov, V.N., Doctor of Technical Sciences; Lebedev, P.D., Doctor of Technical Sciences; Lukinskiy, V.V., Doctor of Technical Sciences (deceased); Petukhov, B.S., Doctor of Technical Sciences; Satanovskiy, A.Ye., Doctor of Technical Sciences; Semenenko, N.A., Doctor of Technical Sciences; Smel'nitskiy, S.G., Candidate of Technical Sciences; Sokolov, Ye.Ya., Doctor of Technical Sciences; Chistyakov, S.F., Candidate of Technical Sciences, and Shcheglyayev, A.V., Corresponding Member, USSR Academy of Sciences; Editorial Board of set: Bel'kind, L.D., Doctor of Technical Sciences; Glazunov, Doctor of Technical Sciences; Golubtsova, V.A., Doctor of Technical Sciences; Zolotarev, T.L., Doctor of Technical Sciences; Izbash, S.V., Doctor of Technical Sciences; Kirillin, V.A., Corresponding Member, USSR Academy of Sciences;

MARGULOVA, T.Kh.

GOLUBTSOVA, V.A.; CHILIKIN, M.G.; MARGULOVA, T.Kh.; MESHKOV, V.V.; DROZDOV, N.G.; PEREKALIN, M.A.; SMIRNOV, V.A.

Professor V.S. Pantiushin. Elektrichestvo no.7:93 Jl '56. (MLRA 9:10)

(Pantiushin, Vasilii Sergeevich, 1906-)

. BADYL'KES, I.S.---(continued) Card 2.

Vol. 1. [Heat engineering] Teplotekhnika. Avtorskii kollektiv toma Badyl'kes i dr. Red. -sost. toma I.IA.Konfederatov. 1957. 479 p. (MLRA 10:8)

1. Chlen-korrespondent Akademii nauk SSSR (for Shcheglyayev, Kirillin, Styrikovich). 2. Moscow. Moskovskiy energeticheskiy institut

(Heat engineering--History)

MARGULOVA, T.Kh

BADYL'KES, I.S., doktor tekhnicheskikh nauk; BELINSKIY, S.Ya., kandidat tekhnicheskikh nauk; GIMMEL'FARB, M.L., kandidat tekhnicheskikh nauk; KALAFATI, D.D., kandidat tekhnicheskikh nauk; KERTSELLI, L.I., professor; KOVALEV, A.P., doktor tekhnicheskikh nauk; KONFEDERATOV, I.YA., doktor tekhnicheskikh nauk; LAVROV, V.N., doktor tekhnicheskikh nauk; LEBEDEV, P.D., doktor tekhnicheskikh nauk; LUKNITSKIY, V.V., doktor tekhnicheskikh nauk [deceased]; PETUKHOV, B.S., doktor tekhnicheskikh nauk; SATANOVSKIY, A.Ye., kandidat tekhnicheskikh nauk; SEMENENKO, N.A., doktor tekhnicheskikh nauk; SMEL'NITSKIY, S.G., kandidat tekhnicheskikh nauk; SOKOLOV, Ye.Ya., doktor tekhnicheskikh nauk; CHISTYAKOV, S.F., kandidat tekhnicheskikh nauk; SHCHEGLYAYEV, A.V.; BEL'KIND, L.D., doktor tekhnicheskikh nauk, redaktor; GLAZUNOV, A.A., doktor tekhnicheskikh nauk, redaktor; GOLUBTSOVA, V.A., doktor tekhnicheskikh nauk, redaktor; ZOLOTAREV, T.L., doktor tekhnicheskikh nauk, redaktor; IZBASH, S.V., doktor tekhnicheskikh nauk, redaktor; KIRILLIN, V.A., redaktor; MARGULOVA, T.Kh., doktor tekhnicheskikh nauk, redaktor; MESHKOV, V.V., doktor tekhnicheskikh nauk, redaktor; PETROV, G.N., doktor tekhnicheskikh nauk, redaktor; SIROTINSKIY, L.I., doktor tekhnicheskikh nauk, redaktor; STYRIKOVICH, M.A., redaktor; SHNEYBERG, Ya.A., kandidat tekhnicheskikh nauk, redaktor; MATVEYEV, G.A., doktor tekhnicheskikh nauk, redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

[History of power engineering in the U.S.S.R.; in three volumes] Istoriia energeticheskoy tekhniki SSSR; v trekh tomakh. Moskva, Gos.energ.izd-vo.

(Continued on next card)

MARGULOVA, Tereza Khrisoforovna; KHOLODOVSKIY, G.Ye., redaktor; VORONIN, K.P., tekhnicheskiy redaktor

[Layout and thermal calculations for boiler installations] Komponovka i teplovoi raschet kotloagregata. Moskva, Gos. energ. izd-vo 1956. 120 p. (MLRA 9:12)
(Boilers)

MARGULOVA, T.Kh., doktor tekhn.nauk; GRADSKAYA, L.V., inzh.; KERMAN, E.Ya., inzh.

Intake of cooling water in condensers. Elek.sta. 32 no.4:36-40 Ap '61. (MIRA 14:7)
(Condensers (Steam)—Cooling)

MARGULOVA, T.Kh., doktor tekhnicheskikh nauk, professor.

Conversion of Loeffler boilers for evaporation in stages. Trudy MEI no.25:133-143 '55. (Boilers) (MLRA 9:7)

MARGULOVA, T. K.

AID P - 2881

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 14/16

Authors : Margulova, T. Kh., Doc. Tech. Sci., Prof., Katkovskaya, K. Ya., Kand. Tech. Sci., and Borodulina, L. P.

Title : Nomograms for steam purity calculation

Periodical : Teploenergetika, 10, 60-61, O 1955

Abstract : The method of computing nomograms for calculating steam is explained. These nomograms compute the purity of steam for 2-stage evaporation and salt content. Three diagrams.

Institution : None

Submitted : No date

MARGULOVA, T. Kh.

AID P - 1826

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 3/16

Author : Margulova, T. Kh., Doc. of Tech. Sci., Prof., Moscow

Title : Determination of feed-water conditioning in relation to the purity of steam

Periodical : Teploenergetika, 3, 14-17, Mr 1955

Abstract : The author presents a method of calculation of steam purity for various systems of the feed-water loop of drum boilers. A calculating nomogram is also presented. The author demonstrates that substantiated magnitudes of basic feed-water characteristics can be selected only on the basis of steam purity calculations. This, in turn, is determined in practice for once-through boilers only by the purity of the feeding condensate. Three diagrams

Institution: Moscow Power Engineering Institute

Submitted : No date

MARGULOVA, Tereza Khristoforovna; KOSTRIKIN, Yu.M., redaktor; SKVORTSOV, I.M., tekhnicheskiy redaktor.

[Methods of obtaining pure steam] Metody poluchenila chistogo para. Moskva, Gos.energeticheskoe izd-vo, 1955. 179 p.(MLRA 8:12)
(Steam)

USSR/Engineering - Thermotechnics FD-1583

Card 1/1 : Pub. 41-4/18

Author : Margulov, T. Kh., Moscow

Title : Experience in use of radioactive isotopes for investigating vapor purity in a semi-industrial boiler at high pressures

Periodical : Izv. AN SSSR. Otd. tekh. nauk 8, 29-36, Aug 1954

Abstract : Investigates radioactive isotope method for determining purity of vapor in a semi-industrial boiler at the Moscow Power Engineering Institute, 1950-52. The productivity of the boiler was up to 2.5 tons per hour at pressures from 110 to 185 atm. Isotopes of P and S were used for determining moisture content of the vapor, the moisture content being determined by the ratio of the activity of samples of the condensate of the vapor and boiler water. Determinations obtained by the radioactive isotope method were then compared with determinations of vapor purity obtained by the usual analytical methods. Graphs.

Institution :

Submitted : September 24, 1954

MARGULOVA T. Kh.

GOLUBTSOV, V.A., professor; MARGULOVA, T.Kh., professor, doktor tekhnicheskikh nauk.

Applying gradual evaporation in feeding a boiler with condensate. (MLRA 7:11)
Trudy MEI no.11:109-134 '53.
(Feed water)

MARGULOVA, T.Kh., professor, doktor tekhnicheskikh nauk.

Experimental examination of the relative speed of steam bubbling through a layer of water under very high pressure. Trudy MEI no.11: 70-81 '53. (MLRA 7:11)
(Steam, High-pressure)

MARGULOVA, T. KH.

3000

621.182.21 : 621.317.39

2034. Salt gauge for control of purity of high-pressure saturated steam. [illegible] AND T. KH. MARGULOVA. Elekt. Stantsii, 1954, No. 10, [illegible]. In Russian.

This simple, low-inertia gauge is for use on high-purity steam systems above 80 atm where degassing (mainly ammonia removal) and increase of salt concentration is needed before accurate measurements can be made. From 50 to 100 kg of steam pass through the gauge per hour. Here the steam pressure is reduced by a constant amount to produce condensate, which is separated from the steam and gases in a cyclone. The salt concentration in the condensate is a known constant multiple of its concentration in the liquid steam. Measurements of electrical conductivity of the condensate indicate promptly and continuously the salt content of the steam, and samples can be subjected, as needed, to chemical analysis. I. [illegible]

MARGULOVA, T. Kh.

AID - P-72

Subject : USSR/Engineering

Card : 1/1

Authors : Styrikovich, M. A., Corresp. Memb. Ac. of Sci., USSR, Patsukov, N. G., Dr. Eng. Sci. and Margulova, T. Kh., Dr. Eng. Sci.

Title : The Use of H-Na-Cationic Installations on High Pressure Heat and Electric Power Plants

Periodical : Izv. V.T.I., v. 21, #3, 4-7, Mr 1952

Abstract : The purification of feed water in high pressure boiler is discussed. The lowering of concentration of silicic acid by partial water blowing, by washing of steam and by stepped evaporation are analysed. The use of a H-Na-cationic installation is specified for different conditions.

Institutions: Moscow Inst. of Power Engineering im. Molotov (MEI) and Central Scientific Research Inst. for Boilers and Turbines im. I. I. Polzunov (TsKTI)

Submitted : September 27, 1951